Dell™ PowerEdge™ Cluster SE400 and SL400

Platform Guide

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

This document provides information for installing and connecting peripheral hardware components to your Dell™ PowerEdge™ Cluster SE400 and SL400 systems. The configuration information in this document is specific to Microsoft® Windows NT® Server 4.0, Enterprise Edition and Windows® 2000 Advanced Server operating systems.

This document provides the following information:

- PowerVault™ and PowerEdge systems that support Cluster SE400 and SL400 cluster configurations

- PowerEdge systems that work together in a Windows NT Server 4.0, Enterprise Edition or Windows 2000 Advanced Server cluster configuration

- PCI slot information for installing Dell OpenManage™ Remote Assistant Card II (DRAC II cards), Dell Remote Access Card III (DRAC III cards), NICs, and RAID controllers in your cluster nodes

📝 **NOTE:** Configurations not listed in this document are not certified or supported by Dell or Microsoft.

Supported Cluster Configurations

Table 1-1 provides a list of supported cluster configurations for the Cluster SE400 and SL400 running Windows NT Server 4.0, Enterprise Edition or Windows 2000 Advanced Server.

Table 1-1. Supported Cluster Configurations

PowerEdge Cluster	Supported PowerEdge Systems	Supported PowerVault Storage Systems	Supported Cluster Interconnect (for the Private Network)
SE400	1550, 1650, 2400, 2450, 2500, 2550, 2600, 2650, 4400, 4600, 6400, 6450, 6600, 6650, and 8450	220S and 221S	Any supported NIC
SL400	1550, 2400, 2450, 2500, 2550, 4400, 6400, 6450, and 8450	220S and 221S	Emulex cluster local area network (cLAN) high performance, low-latency host adapter

Rules and Guidelines

When configuring your cluster, both cluster nodes must contain identical versions of the following:

- Operating systems and service packs

- Hardware drivers for the NICs, RAID controllers, and any other peripheral hardware components

- Management utilities, such as Dell OpenManage systems management software

Obtaining More Information

See the section related to your cluster product for more information on supported configurations.

See the *Dell PowerEdge Cluster SE400 and SL400 Installation and Troubleshooting Guide* for a detailed list of related documentation.

Windows NT Server 4.0, Enterprise Edition and Windows 2000 Advanced Server Cluster Configurations

This section provides information on PowerEdge cluster configurations for your Cluster SE400 and SL400 running the Windows NT Server 4.0, Enterprise Edition or Windows 2000 Advanced Server operating system.

Your Cluster SE400 and SL400 supports PowerEdge systems as cluster nodes in identical systems running Windows NT Server 4.0, Enterprise Edition or Windows 2000 Advanced Server.

Table 1-2 provides a list of PowerEdge systems that work together in SE400 or SL400 cluster configurations.

Table 1-2. PowerEdge Cluster Node Configurations

1550	1650	24*xx*	25*xx*	26*xx*	4400	4600	64*xx*	66*xx*	8450
1550-1550	1650-1650	2400-2400	2500-2500	2600-2600	4400-4400	4600-4600	6400-6400	6600-6600	8450-8450
		2450-2450	2550-2550	2650-2650			6450-6450	6650-6650	

NOTE: The PowerEdge 1650, 2600, 2650, 4600, 6600, and 6650 systems are not supported in the SL400 configurations.

Service Pack Support

Windows NT Server 4.0 Service Pack 6a (SP6a) or later is recommended for Cluster SE400 and SL400 systems.

Windows 2000 Advanced Server Service Pack 2 (SP2) or later are recommended for Cluster SE400 and SL400 systems.

You can download the latest service pack from the Microsoft website located at **www.microsoft.com**.

See the *Dell PowerEdge Cluster SE400 and SL400 Installation and Troubleshooting Guide* for instructions on installing the service pack.

Installing Peripheral Components in Your PowerEdge Cluster Node PCI/PCI-X Slots

This section provides configuration information for adding NICs, a DRAC II or III, and RAID controllers into your cluster node PCI/PCI-X slots.

Installing the PERC 3/DC

You must install the PERC 3/DC RAID controller in a 64-bit PCI/PCI-X slot up to 133 MHz or a 32-bit, 33-MHz PCI slot. See the PCI/PCI-X slot assignments in the following section for information about your specific system.

If you are using multiple PERC 3/DC cards, Dell recommends that you install them on separate PCI buses for load balancing.

Adding Peripherals to Your PowerEdge Cluster Nodes

⚠ **CAUTION: Hardware installation should be performed only by trained service technicians. Before working inside the system, see the safety instructions in your PowerEdge *System Information Guide* document to avoid a situation that could cause serious injury or death.**

📝 **NOTE:** To ensure that the SCSI or RAID controller attached to the boot drives initializes first, you might have to change the device controller priority order using the system BIOS utility or physically change the order of the RAID adapters. This process ensures that the Windows operating system numbers the boot drives in the proper sequence.

Table 1-3 provides PCI slot assignment information for installing RAID controllers and NICs in your PowerEdge cluster nodes.

Table 1-3. PCI/PCI-X Slot Assignments for PowerEdge Cluster Nodes

PowerEdge System	PCI Buses	RAID Controller	NICs	DRAC II or III
1550	Bus 1: 64 bit, 66 MHz. Bus 2: 64 bit, 66 MHz.	Install in any available PCI slot.	Install in any available 64-bit PCI slot. Dell recommends installing Emulex cLAN adapters in PCI slots 1 or 2.	NA
1650	Bus 1: 64 bit, 66 MHz. Bus 2: 64 bit, 66 MHz. OR Bus 1: 32 bit, 33 MHz. Bus 2: 64 bit, 66 MHz.	Install in any available PCI slot.	Install in any available 64-bit PCI slot.	If you are currently using a DRAC III or plan to use one in the future, you will need a riser board with a 32-bit, 33-MHz expansion slot.
2400	Bus 1: PCI slots 1 through 5 are 64 bit, 66 MHz. Bus 2: PCI slot 6 is 32 bit, 33 MHz.	Install in any available PCI slot. If you are not currently using a DRAC II and do not plan to use one in the future, Dell recommends that you install one RAID controller in the 32-bit slot, even if the RAID controller is a 64-bit controller.	Install in any available 64-bit PCI slot. Dell recommends installing Emulex cLAN adapters in 64-bit slots.	If you are currently using a DRAC II or plan to use one in the future, install it in PCI slot 6.
2450	Bus 1: PCI slots 1 through 3 are 32 bit, 33 MHz.	Install in any available PCI slot.	Install in any available 64-bit PCI slot. Dell recommends installing Emulex cLAN adapters in PCI slot 1 or 2.	If you are currently using a DRAC II or plan to use one in the future, install the DRAC II in PCI slot 2.

PowerEdge System	PCI Buses	RAID Controller	NICs	DRAC II or III
2500	Bus 1: PCI slots 6 and 7 are 32 bit, 33 MHz. Bus 2: PCI slots 3, 4, and 5 are 64 bit, 33 MHz. Bus 3: PCI slots 1 and 2 are 64 bit, 66 MHz.	Install in any available PCI slot.	Install in any available 64-bit PCI slot. Dell recommends installing Emulex cLAN adapters in PCI slot 3, 4, or 5.	If you are currently using a DRAC II or plan to use one in the future, install the DRAC II in PCI slot 7.
2550	Bus 1: PCI slots 1, 2, and 3 are 64 bit, 33 MHz.	Install in any available PCI slot. If you are not currently using a DRAC II and do not plan to use one in the future, Dell recommends that you install one RAID controller in the 32-bit slot, even if the RAID controller is a 64-bit controller.	**NOTE:** The Broadcom NIC drivers in your cluster node must be one of the following versions: • Windows 2000 Advanced Server—version 2.43 or later • Windows NT Server 4.0, Enterprise Edition—version 2.46 or later The Broadcom NIC firmware version must be 1.12 or later. The integrated Broadcom NIC firmware revisions were created in ascending order, starting with version 1.1 and ending with 1.12 or later. Consequently, version 1.2 is an earlier version than version 1.12. To upgrade the firmware, at the prompt, type upgf x boot y where x is the device number of the integrated Broadcom NIC and y is the drive letter of where the firmware file is located. The utility upgrades the integrated NIC firmware in your system. The driver and utility to upgrade the firmware are available on the Dell Support website at **support.dell.com**.	PCI slot 2 is dedicated to interface with the optional DRAC II.

PowerEdge System	PCI Buses	RAID Controller	NICs	DRAC II or III
2600	PCI slot 1 is 32 bit, 33 MHz. Bus 2: PCI/PCI-X slot 7 is hot-pluggable 64 bit, up to 133 MHz. Bus 3: PCI/PCI-X slot 6 is hot-pluggable 64 bit, up to 133 MHz. Bus 4: PCI/PCI-X slots 4 and 5 are hot-pluggable 64 bit, up to 100 MHz. Bus 5: PCI/PCI-X slots 2 and 3 are hot-pluggable 64 bit, up to 100 MHz.	Install in any available PCI slot. **NOTE:** Install PERC 3/DC and PERC 3/QC expansion cards in PCI-X expansion card slots 2–5. Dell recommends that you do not install PERC 3/DC and PERC 3/QC expansion cards in slots 6 and 7.	Install in any available PCI slot.	NA
2650	Three 64-bit PCI/PCI-X slots are located on the riser card (two slots on bus 1 and one slot on bus 2). Slots accept full-length cards designed for PCI-X up to 133 MHz.	Install in any available PCI slot.	Install in any available 64-bit PCI slot. **NOTE:** For systems using Windows NT 4.0, Enterprise Edition, adding and removing a PERC 3/DC expansion cards requires that drivers for the onboard NIC be installed.	NA
4400	Bus 1: PCI slots 1 and 2 are 64 bit, 33/66 MHz. Bus 2: PCI slots 3 through 6 are 64 bit, 33 MHz. Bus 3: PCI slot 7 is 32 bit, 33 MHz.	Install in any available 64-bit, 33-MHz or 32-bit, 33-MHz PCI slot.	Install in any available PCI slot. Dell recommends installing Emulex cLAN adapters in 64-bit slots.	If you are currently using a DRAC II or plan to use one in the future, install the DRAC II in PCI slot 7.

PowerEdge System	PCI Buses	RAID Controller	NICs	DRAC II or III
4600	PCI slot 1 is 32 bit, 33 MHz. Bus 1: PCI/PCI-X slots 2 and 3 are hot-pluggable 64 bit, up to 100 MHz. Bus 2: PCI/PCI-X slots 4 and 5 are hot-pluggable 64 bit, up to 100 MHz. Bus 3: PCI/PCI-X slots 6 and 7 are hot-pluggable 64 bit, up to 100 MHz.	Install in any available 64-bit, 33-MHz or 32-bit, 33-MHz PCI slot.	Install in any available PCI slot.	If you are currently using a DRAC III or plan to use one in the future, install the DRAC III in PCI slot 1.
6400	Bus 1: PCI slot 1 is 32 bit, 33 MHz. Bus 2: PCI slots 2 through 5 are 64 bit, 33 MHz. Bus 3: PCI slots 6 and 7 are 64 bit, 33/66 MHz.	Install in any available 32-bit, 33-MHz or 64-bit, 33-MHz PCI slot.	Install in any available PCI slot. Dell recommends installing Emulex cLAN adapters in 64-bit slots.	If you are currently using a DRAC II or plan to use one in the future, install the DRAC II in PCI slot 1.
6450	Bus 1: PCI slot 1 is 32-bit, 33 MHz. Bus 2: PCI slots 2 through 5 are 64 bit, 33 MHz. Bus 3: PCI slots 6 and 7 are 64 bit, 33/66 MHz.	Install in any available 32-bit, 33-MHz or 64-bit, 33-MHz PCI slot.	Install in any available PCI slot. Dell recommends installing Emulex cLAN adapters in 64-bit slots.	If you are currently using a DRAC II or plan to use one in the future, install the DRAC II in PCI slot 1.

Table 1-3. PCI/PCI-X Slot Assignments for PowerEdge Cluster Nodes *(continued)*

PowerEdge System	PCI Buses	RAID Controller	NICs	DRAC II or III
6600	Bus 1: PCI slot 1 is 32 bit, 33 MHz. Bus 2: PCI/PCI-X slots 2 and 3 are 64 bit, up to 100 MHz. Bus 3: PCI/PCI-X slots 5, 6, and 7 are 64 bit, up to 100 MHz. Bus 4: PCI/PCI-X slots 8, 9, 10, and 11 are 64 bit, up to 100 MHz.	Install in any available slot.	Install in any available slot.	If you are currently using a DRAC III or plan to use one in the future, install the DRAC III in PCI slot 1.
6650	Bus 1: PCI slot 1 is 32 bit, 33 MHz. Bus 2: PCI/PCI-X slots 2 and 3 are 64 bit, up to 100 MHz. Bus 3: PCI/PCI-X slots 4, 5, and 6 are 64 bit, up to 100 MHz. Bus 4: PCI/PCI-X slots 7 and 8 are 64 bit, up to 100 MHz.	Install in any available slot.	Install in any available slot.	If you are currently using a DRAC III or plan to use one in the future, install the DRAC III in PCI slot 1.

Table 1-3. PCI/PCI-X Slot Assignments for PowerEdge Cluster Nodes *(continued)*

PowerEdge System	PCI Buses	RAID Controller	NICs	DRAC II or III
8450	Bus 1: PCI slots 1 and 2 are 64 bit, 33 MHz. Bus 2: PCI slots 3 through 6 are 64 bit, 33 MHz. Bus 3: PCI slots 6 and 7 are 64 bit, 33/66 MHz. Bus 4: PCI slots 9 and 10 are 64 bit, 33/66 MHz.	Install the RAID controller for the system's internal drives in PCI slot 1. Install additional RAID controllers in any available 64-bit, 33-MHz or 32-bit, 33-MHz PCI slot.	Install in any available PCI slot. Dell recommends installing Emulex cLAN adapters in 64-bit slots.	If you are currently using a DRAC II or plan to use one in the future, install the DRAC II in PCI slot 2.

PowerEdge Cluster SE400 and SL400 Configuration Matrix Form

The following form can be attached to the back of each cluster node or rack and used by the system installer to record important information about the cluster hardware on each cluster component. If you need to call Dell for technical support, complete this form before you call and have it available for the technician to assist you with your problem.

The following information is required for the configuration matrix form:

- Cluster name, installer, date installed, and notes
- Cluster system information
- Storage array description for each storage array
- Service tag information for each cluster component
- PCI slot number for each cluster node, a description of each PCI slot, the adapters installed in each slot, and a usage description for each installed adapter

Table 1-4. PowerEdge Cluster SE400 and SL400 Configuration Matrix Form

Cluster Type	PowerEdge Cluster SE400 or SL400
Cluster Name	
Installer	
Date Installed	
Applications	
Location	
Notes	

Node	PowerEdge System Model	Windows Name
Node 1		
Node 2		

Storage Array	Description (Drive Letters, RAID-Type Applications/Data Installed)
Storage 1	
Storage 2	
Storage 3	
Storage 4	

Component	Node 1	Node 2	Storage 1	Storage 2	Storage 3	Storage 4
Service Tag						

System	Storage 1	Storage 2	Storage 3	Storage 4
Node 1, controller 1				
Node 2, controller 1				
Node 1, controller 2				
Node 2, controller 2				

PCI Slot Number	PCI Slot Description	Adapter Installed (PERC 3/DC, NIC, and so on)	Use (Public Network, Private Network, Shared Storage, Internal Drives)
PCI slot 1			
PCI slot 2			
PCI slot 3			
PCI slot 4			
PCI slot 5			
PCI slot 6			
PCI slot 7			
PCI slot 8			
PCI slot 9			
PCI slot 10			
PCI slot 11			